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GLEANINGS

IN BEE CULTURE

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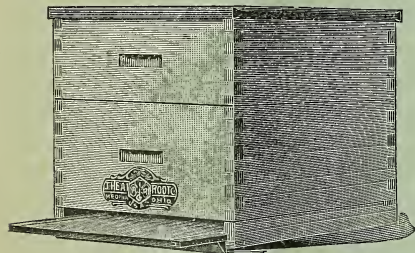
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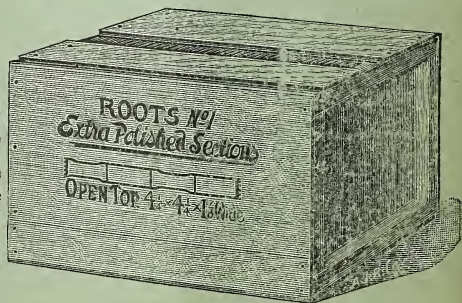


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A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. MEDINA, OHIO. \$1.00 PER YEAR

Vol. XXXII.

SEPT. 1, 1904.

No. 17



A PLURALITY of eggs in a queen-cell is a reliable indication of the presence of laying workers. For the first time I found an exception the other day—two eggs in a queen-cell with a laying queen. But that happens only once in forty years.

SOMETHING NEW all the time. I enclose a sample of pollen that was coming in plentifully some days ago. It is dull now; but when fresh it was a distinct bright green. I wonder what it is from. [The pollen has been examined, but it is a little greener than any thing we have here. Perhaps you have a little nephew who can chase the bees up to see what they are getting it from.—ED.]

PHACELIA doesn't come up to expectations. I have a patch about ten feet square that I've been watching closely. The bees don't work on it as thickly as I expected, from having seen them on a few plants years ago. Possibly that was in a time of dearth. A patch of buckwheat would have more bees on it. Horses will eat it, but do not seem to hanker for it; neither does a bed of it look as pretty as I expected—don't believe it's worth booming in this locality.

HOW DID IT turn out when you made a colony queenless? How old were the larvæ chosen by the bees? If you haven't tried it, it will take only two days to do it, and you can hold the footnote to this Straw that length of time. It won't kill me if you say at Medina they choose larvæ just before they're big enough to be sealed. [The bees will at the start take larvæ of the right age, but later on keep on building cells for larvæ that are too old. So far I think your contention has been sustained.—ED.]

JUST NOW I'm enjoying the luxury of pain. Propped up with pillows at the type-

writer, to which I could sit down only with knife-thrusts of exquisite pain in my back, with the same prospect before me on arising, I think I was never more filled with gratitude in my life, as God has given me so many years all through my life when I was free from such suffering. [The foreman of our printing department once said, during a fit of sickness, "Be happy when you are well." I have thought of that a good many times, both when I was sick and well; but when we can be happy with knife-thrusts and exquisite pain in our sides and backs we have to have a great deal of the grace of God in the heart; and I congratulate you, doctor, on that state of being. But we sincerely hope this knife-thrust you speak of is more painful than serious. We are not quite ready to spare you, and trust that, by the time you read these lines, the pain will have all disappeared, and that you will be happier still if possible. And I am sure I am voicing the opinion of all of our readers when I say, "Blessings on you, and may the Lord restore you to your usual health." We will even go so far as to forego the pleasure of Straws if the rest will hasten that recovery.—ED.]

THAT PRELIMINARY VOTING for candidates of the National—see p. 821—is an excellent thing; but it is to be feared that there will be some misunderstanding. The names of the two men receiving most votes will be published, and the November ballot "will decide which of the nominees will hold the office." Some will understand from that that no other votes of the November ballot will be counted except for these two men. Surely any member should be allowed to vote for whom he pleases. Even if Mr. France is required to publish the two highest names, there's no law against his publishing others, and it would be a good thing to publish at least the five highest. Possibly the third or fourth highest might be the successful one. It would also be a help toward deciding on candidates in future elections. [Of course, it is understood that any one can vote for any one he likes. Whether it is best to increase the number of candidates in the field is a question I am not able

to answer. I think, however, I would favor the plan that is already put out by the committee.—ED.]

BABY NUCLEI "will not prove to be satisfactory unless they have brood, a little feeding, and they must be handled without any smoke the greater part of the time," page 792. Is there any need to use smoke *any* of the time? They're about as gentle as so many flies, even if the colonies from which they are taken are not noted for gentleness. If, as a rare thing, one of them should resent interference, just hold right still for a few seconds till their minds have time to clear. I saw Adam Grimm do that years ago with nuclei not much larger than the ones now so prominently before us. Brood and a little feeding will no doubt help and hasten matters, but never a brood nor a food have they had from me, and they have by no means been failures. Very likely, with brood and food there would be quicker work and fewer failures, and one who has plenty of time can use them. If one is very busy it may be cheaper to have a larger number of nuclei, and save the time and bother of brood and food. I wonder if you've tried it without brood or food at Medina. [Yes, sir, 'e; but much better results are secured with brood and feeding; and, besides, the beginner or the person who has never tried these baby nuclei should have favoring conditions to start with at least. We have succeeded without brood, but do not believe the average person could.—ED.]

BRO. DOOLITTLE, you are entitled to credit for the discovery of the law that from 11 to 1 a queen is on one of the two outside combs of brood, if there is such a law, and I have no proof that there is not. But it doesn't seem that you make any use of your knowledge of the law, for your instructions on page 794 are to look carefully over each frame in order through the whole hive. Now, if there are only two frames in the whole hive on which the queen should be found, why not quietly lift out those two frames at the start, and save the time of handling the others? Then it will be time enough to look over the other combs afterward in the exceptional cases where the queen is on one of the central combs. [Neither have I any proof that Mr. Doolittle is not right. But it seems to me the queen is liable to be anywhere in the hive where there is room for her to lay. It may be on the one side or the other, or in the center. My rule is to look for fresh-laid eggs. She seems to make a sort of progress, moving slowly from one comb to another. If there are very young larvæ in one comb, and eggs in the next one, she may be on this comb; but if not, on the next one. I shall be glad to believe that our friend is right, and would therefore like to get reports from our subscribers who have made this subject a matter of careful observation.—ED.]

DR. E. F. PHILLIPS says, p. 802, "As is well known, a young virgin queen is normally accepted without any difficulty by any

colony which has been queenless long enough to know its queenless condition." Quite true; but is it the whole truth? Is it not true that a virgin young enough will be accepted in *any* colony? That truth, if it is a truth, is a discovery of my own, and one is likely to be partial to one's own babies, so I should like to know if others have found any exception to the rule that a virgin less than a day old (I'm not certain about the exact age—it may be a little more or less than that) will be accepted in any colony, queenless or not. I've tried it many, many times, and I think there has been no exception as yet. When a virgin is under a day old, the bees don't seem to think there is any thing unusual about her—they treat her with indifference. If put into a hive with a laying queen, she has been accepted with the usual indifference. After she has become a little older, the bees seem to discover that she is of royal blood with aspirations; and if their queen is all right the virgin will be killed. If their queen is one that they desire to supersede, the virgin is cherished and treated with the respect due to royalty. I have given a baby virgin to a colony with laying workers, and in due time she monopolized the egg business. The fact that no one has as yet disputed my statements made several times in the past few years makes me somewhat hopeful that there are no exceptions to the rule; but I'd like to have the observation of others. The rule is of value if true—handy for laying workers; and when I take a laying queen from a nucleus I always drop in a baby virgin if I have one. [You may be right; but it seems to me that a very young virgin receives some sort of attention more than the average young bee. I think you are right that even bees that are queenless will not be hostile toward the young mother to-be.—ED.]



Revue Eclectique says if the leaves of absinthie be rubbed on the hands the bees will not alight on them, as they have a great aversion to that plant. If swarms are in the habit of alighting on certain inconvenient limbs, this plant, if rubbed on the bark, will repel them.

A Holland-Dutch bee-journal says a very nice varnish for furniture can be made by dissolving propolis in alcohol and then straining it. By the way, who has ever made a quotation on propolis by the pound? Perhaps many a nice penny is flung away on this rather troublesome substance. As Dr.

Miller has such an abundance of it, perhaps he can enlighten us.

A German journal announces the death of Michael Ambrozic, of Moistrana, Austria. He was one of the best-known bee-keepers in Europe, his advertisements for years occupying a large place in German bee-journals. He was a very progressive man, and will be greatly missed.

According to a writer in *Rev. Eclectique* the marked increase in the honey-flow at times during thunderstorms is owing to the electricity permeating the soil and accelerating the outward movement of the fluids in some plants. However that may be, it is certain that lightning often does promote the secretion of nectar.

Mr. P. Noblecourt, writing to *L'Apiculteur* from a village in France, says, in showing how slowly improved methods gain a footing in some localities, "At Aubencheul frame hives were not known [a short time ago]. During last winter I made four new ones which drew the attention of some friends who made some to transfer in in May. The harvest was good in our country. Bee-keepers here have always been in the barbarous habit of suffocating their bees to get the honey and take the wax, hence they could not profit by good years to build up their apiaries. In winter they saved but a few colonies in straw baskets or skeps. As for an apiary, none exists here except one at Villers, containing four Layens hives in a magnificent garden. I intend to make the new system known by giving and lending books and pamphlets treating on apiculture. Such is the progress (slow enough) that apiculture is making in our country." That writer is a born missionary.

L'Apiculteur for August, in its honey reports for Havre, Marseilles, Hamburg, and Belgium, reports sustained and increasing prices on foreign honey. Chilian honey seems to cut a wide swath in Europe. Concerning the matter of cutting prices the editor says, "The members of the Central Society, on the 19th of June, decided to ask 115 or at least 110 francs, and that price would have been sustained by the Parisian dealers. But just at that time a Gatinais house scattered circulars broadcast among grocers, offering superfine honey at 105. To offer honey at such a price, that house must have had some guarantee from some one against low prices. Whose fault was this, if not the producers', who sold without informing themselves as to what was going on around them? It seems to us the prices of 1903 should have been sustained, as the existing stock in the hands of wholesalers does not seem to be considerable." That's another case where those most interested pull trouble down on their own heads as well as on their neighbors, through lack of information.



EMBRYO LIFE OF THE BEE.

"Can you tell me, Mr. Doolittle, how long it is from the time the queen lays the egg for a worker bee till the same emerges from its cell a perfect bee?"

"I do not know that I can, Mr. Barber."

"I thought I had read, some time ago, somewhere, that you thought 21 days was the time."

"I presume you did, for I have so written; and that would be what I would say now if I told you without any qualification or explanation. But these qualifications and explanations would make it so that I could not place any exact time which would meet the wants of a critic. But 21 days is near enough for all practical purposes."

"I think you claimed about six days in the larval form in that article of yours which I read."

"Very likely."

"Well, how do you reconcile that time with the four and a half to five days as given by others?"

"I do not try to do the reconciling. I let the others do it."

"How is that?"

"Quinby gave in his 'Mysteries of Bee-keeping Explained,' which book was published about 1865, that the egg, as laid by the queen in worker-cells, hatches in three days to a larva; this larva is fed by the nurse bees six days, when the cell containing it is sealed over, remaining thus for twelve days, during which time it undergoes the change 'from caterpillar to butterfly,' when the covering to the cell is eaten off and it emerges a perfect bee—that being 3, 6, and 12 added together, giving a period of 21 days from the laying of the egg to the perfect bee. Quinby's figures and dates have stood the test of nearly forty years, and it is not for his followers to try to do the reconciling, but for the ones who give different figures to prove that *they* are correct."

"Does not the weather make any difference with these figures?"

"Yes, and that was the reason I said that 21 days was not exact enough to meet the wants of critics. Very warm weather hastens this development to a certain extent, and cold weather retards the same."

"Have you tried the matter for yourself?"

"Yes. Always being anxious to know things for a certainty, so far as they can be ascertained, I have conducted many experiments along this and other lines. To test this I placed a frame of nice worker comb in the center of a populous colony about the first of June, and watched it nearly every hour till I found eggs in it; and when so

found the hour and day were put down on the top-bar of the frame. As my diary tells it, in about two hours less than three days I found larvæ hatched, and in six days and two hours I found the first cells of brood fully sealed over. In 11 days and 23 hours I found the first bee out of its cell, and quite a few biting their cells open near where the first one had emerged."

"That was pretty close to Quinby, wasn't it?"

"Yes; and from this trial I was entirely satisfied as to the correctness of Quinby till a few years ago, when I was withstood by a bee-keeper of considerable prominence who claimed the bees were in the larval form only about three and a half days."

"Didn't you tell him he was wrong?"

"I was about to contradict the statement, but concluded that I would not, as I had made only the one experiment. So I went to experimenting again, the weather being extremely hot at this time, and right in a big flow from the basswood, in July. The result during this very hot weather was a little less time in the egg form, a little over five and a half days in the larval form, and but little over eleven days in the pupa form, or only about 19¼ days from the egg to the perfect bee this time. And this is the shortest time that I ever knew bees to emerge from their cells in any of the experiments which I have ever conducted."

"Might it not be that in the South this might be brought down to 19 days?"

"It is barely possible; but I hardly think it probable. I have many times cut out all queen-cells but one on the seventh day from the issuing of the first swarm, and had said colonies build queen-cells over larvæ still unsealed; and when these queens were old enough to come from their cells, send out a swarm with the queen emerging from the cell I had left in cutting, I expecting that all larvæ would be too old to change into queens; which they would have been if the theory of larvæ being capped at four days old were correct."

"That is about as conclusive proof as your other experiments were. But is 21 days the longest period you ever knew in the embryo state?"

"No. The difference with cold weather is more noticeable than in hot weather. I have known very nearly 24 days to elapse with weak colonies and cold weather, while the bee was developing. But 21 days is the rule according to all of my general work among the bees during the past 35 years, and this rule can be depended upon in governing all our methods of dividing bees, forming nuclei, and in breeding bees in time for the honey harvest; in all of which it is necessary that we should have some knowledge of these matters. And right here let me say, before I forget it, that the time of the year when the development of the brood is the most retarded by cool weather is in the fall; and when most accelerated by hot weather is in June and July, when the bees are busily engaged in the honey harvest.

The reason for this seems to be that the bees are very active during the fore part of the season, while they become more sluggish as the season draws toward its close."

"Are the embryo queens about the same time in developing?"

"No. They are just the same as regards the time for them in the egg form; and I believe all eggs are alike which are fertilized. Then they are from 5 to 5½ days in the larval form, and about 7½ days in the pupa form, or not far from 16 days in developing, warm weather accelerating and cold weather retarding to the amount of perhaps half a day each way."

"I think I will try these experiments myself next season, as I believe it is necessary for each bee-keeper to have a thorough knowledge about all things which pertain to his pets."



SOME of the more critical of our subscribers may notice that this journal is printed from a new face of type. Our heavy editions have been wearing our type so fast that we now find it necessary to change the type oftener than formerly.

SEVERAL of our correspondents in Southern California have written us of late that the season in that part of the State, with hardly an exception, is the worst on record. It will prove very severe on many bee-keepers of that State who have not prepared to tide over the season for another year when even then the flow may be indifferent or poor.

THE LAST RETURNS OF THE HONEY CROP FOR 1904.

REGARDING the amount of honey produced this year, the accumulated evidence that has come in from various sources seems to show quite clearly now that the aggregate of honey this season is *much less than last*. In a way, this may be a blessing in disguise, considering the large amount of comb and extracted honey carried over from last season. If we had had a crop as heavy as last year, the market might have suffered a total collapse from which it might not have entirely recovered. "There is no great loss without some small gain" is an old adage that may be possibly true in this case.

WHY BEE-KEEPERS SHOULD EDUCATE THEIR LOCAL MARKET.

I WISH to reiterate what I have said before until bee-keepers believe it as fully as I do, that the comb-honey canards that ap-

peared in some of our reputable journals have done the comb-honey market an awful damage, and it will be a long while before we recover from it. Bee-keepers all over the country should sell, as far as possible, to their own local markets, and, what is more, seek means to educate the public regarding the purity of their product. In many cases it may be advisable to make a house-to-house canvass. Some of the city markets were overstocked last season, and even now have on hand quite an amount of honey—see market quotations. Rather than rush it to the nearest commission houses, hunt up some bee-keeper who is an adept at peddling honey. There are hundreds of them who are able to dispose of four or five times what they are able to produce.

BEE-KEEPERS SHOULD DRUM UP TRADE AMONG THE GROCERY CLASS.

MR. E. B. ROOD, in the *American Bee Journal* for Aug. 4, urges the great importance of bee-keepers developing their home markets. At first his grocer friends were suspicious; but when he convinced them that his honey was pure he sold them 1000 lbs. the first season, and in a year or so afterward sold as high as 10,000 lbs. He quotes the editor of GLEANINGS as suggesting that, if the grocery trade is once worked up, orders will come in regularly without effort. This, he says, is not in the line of his experience. Grocers buy most of their stuff through drummers; and he finds that the grocery trade has got to be drummed up by bee-keepers if they expect to sell their product. The suggestion attributed to me, if I remember correctly, had reference to *consumers*, not retailers.

DEATH OF ANOTHER PIONEER BEE-KEEPER.

MR. J. B. HAINS, of bee-feeder fame, of Bedford, O., a bee-keeper who has taken a prominent part in apicultural affairs in Ohio, died at his residence Aug. 24. He did quite a large business in putting up bottled honey for the markets of Cleveland. Much of it he produced, and the rest he bought, all from well-known bee-keepers, so the purity of his goods was always unquestioned.

Mr. Hains was a tinsmith by trade, and that is how he happened to make what was known as the Hains atmospheric feeder.

When he called at our office two months ago he said he had been ailing for some months, and the nature of his trouble was such that he did not think he would live long. As he bade me good by he said, "Ernest, I feel this is my last visit to your plant." The immediate cause of his death was apoplexy.

GETTING UP A CARLOAD OF BEE-KEEPERS TO ATTEND THE NATIONAL CONVENTION AT ST. LOUIS.

AT various times there has been an effort to get up a carload of bee-keepers to attend the National convention. At the meeting that was held in Los Angeles a year ago

there was a whole carload that went from the East, and the trip was in every way very enjoyable, as kindred spirits like bee-keepers that travel together can talk bees to their fill. There is another effort on foot to get a car to go from the Northwest. The following announcement will explain itself:

I am planning to get together a carload of bee-keepers to go from St. Paul to the National convention via Chicago, to leave St. Paul on the morning of Sept. 26. Fare for round trip will be \$13.00 without sleeper; sleeper from Chicago to St. Louis is \$2.00. Already twelve talk of going with car, and I think we shall have no trouble in getting our number, which is twenty.

There will be very little fall honey unless weather clears up soon. It rains much, and we have cool nights. Crop so far is less than last year, and number of colonies is greatly reduced since last year.

L. F. HANEGAN, Manager

St. Croix Valley Honey Pro. Assn.

Glenwood, Wis., Aug. 22, 1904.

Those interested should write to Mr. Hanegan.

OUTDOOR FEEDING FOR WINTER STORES, TO GET THE BEES TO REAR BROOD.

IN addition to what is written on page 811, in a footnote to a correspondent, I would say we have been continuing our experiments in outdoor feeding, and the results continue to be satisfactory in every way. Never, at this time of the year, have the bees of our home apiary been so quiet and peaceable, for the outdoor feeding has brought on a condition very much the same as we get in a light honey-flow. Brood-rearing has been going on—just what our weak colonies have been needing; cells have been built out, and the hives can be opened anywhere without a horde of pilferers hanging around trying to steal a sip of honey, for these marauders are otherwise busily occupied by the aforesaid outdoor feeding.

Combs are being filled and capped over; and our head apiarist, Mr. Phillips, reports that the outdoor method stimulates much more than the in-hive plan; and, what is of the greatest importance, it is not a tenth of the work. The feeders we use are nothing more nor less than our quart Mason jars—larger ones would be better—inverted on boards having shallow saw-cuts about $\frac{1}{8}$ inch apart and the same in depth, and extending nearly the entire length of the board. Of course, the saw-cuts are made parallel with the grain.

We have been feeding, part of the time, weak granulated-sugar syrup in the proportion of one-half sugar and one-half water. At other times we have fed dark unsalable extracted honey, reducing the same down to about the same consistency as the sugar syrup. But the latter we not only consider better for the bees, but it is much less liable to excite them when first given.

By the old way of feeding up for winter, the bees were stimulated in a way that made them very disagreeable. They rushed out of the hives to see where the great supply of food came from, and nosed around the doors and windows of our neighbors in a way that was sometimes very annoying. While they do this to a certain extent now,

there is not nearly as much of it as formerly. After the bees learn where this supply of food comes from, it is not necessary for them to hunt it up, but they go right to the spot, take a drink, and go straight back to the hive.

The only possible objection that can be urged against outdoor feeding is the feeding of neighbors' bees. If they are located within a quarter of a mile I would urge some sort of arrangement by which each neighbor will shoulder equally the expense of the work.

I was talking with one of our neighbors who has one hive of bees about three-fourths of a mile away. These bees are bringing in a little honey, but their line of flight is in the *opposite* direction to that of our bees, or, rather, where our outdoor feeder is located. The fact is, goldenrod is just coming out, and that neighbor's bees are located within three-fourths of a mile of the river, where it is most abundant. But for this natural source of supply his bees would in all probability help themselves at our feeders.

The big colonies will get a larger supply of the food that is given outdoors; but when they are filled they can be given to the weaker ones; and when the feeding is all done, the stores may be equalized throughout the entire yard, with very little trouble and expense.

ARTIFICIAL PARAFFINE HONEY-COMB IN THE LADIES' HOME JOURNAL.

OUR readers will remember that in the June issue of that magazine appeared an article by Emma E. Walker, M. D., on the general subject of foods and their adulterants. Among the list was included artificial honey-comb filled with glucose, etc. We, as did others, immediately sent in our protest to the publishers, and in reply received a very courteous response, to the effect that the matter would receive their careful consideration.

In the meantime, Mr. W. A. Selser, of Philadelphia, on behalf of the National Beekeepers' Association, was asked to call and see the Curtis Publishing Co., and, if possible, get an interview with the editor, Mr. Bok. We also wrote Mr. Selser, authorizing him as our representative (for he is the manager of our Philadelphia branch) to say when he called that we would pay \$1000, reinforced by any kind of bond that could be drawn up, for evidence showing artificial honey-comb honey on the market, filled with glucose as described in their June issue.

It so happened that Mr. Selser was an old neighbor of Mr. Curtis, and was received by him very cordially. To make a long story short, there were several interviews, during which Mr. Selser finally convinced the publishers that the statement by Dr. Walker was incorrect. At last a statement was prepared and submitted to Mr. Selser, which he accepted on behalf of the National and of The A. I. Root Co. The same now ap-

pears in the *Ladies' Home Journal* for September, and we herewith present it just as written by Dr. Walker herself:

ARTIFICIAL PARAFFINE HONEY-COMB.

Since making the statement in this department in the June *Journal* concerning paraffine honey-comb, I have received a number of letters from those interested in the subject challenging my authorities.

My authorities are these:

In "Foods: Their Composition and Analysis," by A. Wynther Blyth, it says:

"A curiosity of food is a commercial American artificial honey, which is entirely composed of glucose syrup, while the comb is also artificial, and made of paraffine."

In "Practical Dietetics," by W. Gilman Thompson, M. D., Professor of Medicine in the Cornell University Medical College in New York City, visiting physician to the Presbyterian and Bellevue Hospitals, it says:

"Artificial honey-combs are now being made from paraffine, stamped into cells to imitate the original, which enables the bees to devote more energy to the manufacture of honey and bestow less on the combs."

In "Food Analysis," by Leffmann and Beam, it says:

"A common method of adulteration consists in pouring glucose syrup over honey-comb from which the honey has been drained, and allowing the mixture to stand until it has acquired a honey flavor."

In "The New International Encyclopædia" for 1893 it says:

"It is stated that much of the so-called honey which is sold contains none of the product gathered by the bee, and is entirely artificial. Of sixty-six samples of honey examined by the Massachusetts State Board of Health fifteen were adulterated with cane-sugar or commercial glucose, or both. One sample contained as high as eighty-eight per cent of commercial glucose."

Notwithstanding these apparently authoritative statements, wide inquiry among practical bee-keepers now convinces me that paraffine is not used for this purpose, and never has been except in an experimental way. Therefore, the statement made in the June issue was erroneous. What appears to be further evidence of this is the fact that a reward of \$1000 for a sample of paraffin comb was offered some years ago, and I understand has never been claimed. Give the above facts so that my former statements may not do any injustice to the army of reputable bee-keepers in America.

While, perhaps, some may feel that Mr. Selser should have demanded a stronger retraction, without any reference to the so-called "authorities," yet I think he should be congratulated in securing what he did. In the mean time we will write to these authorities as soon as we can get the addresses of the publishers, making a vigorous protest.

It should be stated that the army of beekeepers who, in response to the request of the bee-papers, wrote to the publishers of the *Ladies' Home Journal*, undoubtedly rendered Mr. Selser important aid; for that gentleman says the *Journal* was fairly besieged and deluged with protests. Mr. Benton, of the U. S. Department of Agriculture, Washington, D. C., filed with them a vigorous denial. Then, besides, there were letters from the editors of all the bee-papers.

COPY for our new department, "Bee-keeping among the Rockies," arrived too late for insertion in this issue. It will appear in our next.

FOUL BROOD AND BLACK BROOD IN NEW YORK.

THE Tenth Annual Report of the Department of Agriculture contains a report on bee diseases, by Veranus A. Moore, M. D., and G. Franklin White, B. S., of the New York State Veterinary College, Cornell University, Ithaca, N. Y. I have already referred to this report (page 121, Feb. 1), expressing surprise that all the samples of black brood that have come under the inspection of these bacteriologists are diagnosed as *foul brood*. Indeed, the half-tone reproductions from the microscopic slides show the identical rodlike bacillus of the genuine *Bacillus alvei*. But the specimens diagnosed as black brood by the inspectors, these scientists do not find to be the same as the specimens which are pronounced by those same inspectors "foul brood." Unlike foul brood with which we are familiar, the diseased matter of the black brood of New York is *not viscid*, according to the New York bacteriologists. All the genuine cases of foul brood I have seen were *always viscid or ropy*. The disease that wrought such destruction in New York, which we have commonly called "black brood," is not ropy, but, on the other hand, has a sort of fermented smell. The foul brood of Europe, and with which we are familiar, is gluey, and smells like a cabinet-maker's glue-pot. If the bacteriologists of New York are correct, then *Bacillus alvei* manifests itself in two forms; and this leads to the inquiry whether or not there is some *other* microbe, which, in conjunction with *Bacillus alvei*, changes the general character of the disease so that it gives rise to "black brood."

Dr. W. R. Howard, of Fort Worth, Tex., says he found an entirely new microbe, and not *Bacillus alvei*. The one he discovered he called *Bacillus milii*, from its general resemblance to millet seed; but the New York men do not find any thing of this kind, notwithstanding they have pursued their investigation the second season, and this last time with the special view of determining whether their first findings were correct.

The Europeans have spoken of the fact that there are two forms of foul brood—the mild and the virulent. As it has been generally regarded that the black brood, so called, was much worse, it may be that we have here an out-cropping of the more malignant kind. But the foul brood we had here in Medina eighteen years ago was pronounced by scientist Mr. Thos. Wm. Cowan, who examined the disease with his microscope, to be the same as that in Europe, and the symptoms of it in every way tallied with the descriptions of it in all the European works so far as I know. The fact that this black brood deports itself so differently in external symptoms to those shown by foul brood is somewhat of a puzzle. I think that, for a matter of convenience, we shall have to call one black brood as we have been doing, and the other foul brood, and in the mean time may discover whether or not there is another microbe that works with *Bacillus alvei* to produce the other disease.

F. H. DE BECHE, THE BEE-KEEPER AND CUIR PATRIOT.

MR. FRANCISCO H. DE BECHE was born of French parentage in Havana, Cuba, where he passed the greater part of his childhood. At the age of nine years, having lost his mother, he was sent, in charge of his grandparents, to France, afterward entering the College of Bonn, near Antwerp, whence he went some years later to the famous college of Carlsburg, where he finished his education.

On leaving college Mr. de Beche accepted a responsible position in the well-known Parisian banking firm, "Le Comptoir Lyon Allemand," where he remained until his return to Havana for the purpose of accompanying his sister, who had just finished her education in Paris. Returning by way of New York he was much impressed with the activity and business opportunities in that city; and as soon as his mission to Havana was completed he returned to New York to perfect his knowledge of English, entering the employment of the Munson Steamship Line, where he remained until the political situation in Cuba attracted his attention and appealed to his natural chivalry and sense of justice. Arriving again in Havana, just a few months previous to the outbreak of the insurrection against Spain, his attention first became attracted to bee culture; and although actively engaged at the time in other pursuits he found time to build up, in a few months, an apiary of about 300 colonies a few miles west of Havana. In the meantime, however, the spark of liberty, which was lighted by a few hundred men in the mountains five hundred miles east of Havana, had swept the entire length of the island; and his apiary, just at the time it was on a footing to become profitable, was made a sacrifice to the Spanish torch.

Owing to his peculiar fitness, he soon became one of the most active and valuable representatives of the revolution in Havana. The history of his exploits, not only in carrying out intrigues, but the tact and diplomacy displayed by him in interviews with the commanders in the field, and his invaluable service, not the least among them being the successful management of an ammunition-factory in the heart of Havana, supplying the insurgents in the field with arms, ammunition, and medicines, would more than fill a volume.

During all this time, however, his interest in bee-keeping had not lagged; and several months before the close of hostilities, and in the face of innumerable difficulties and dangers, he established another apiary in the southeastern part of Havana Province, from which he secured a very large crop of honey the first season. At the close of the war he retired to his ranch, intending to engage in the business on an extensive scale; but at the insistence of his many friends in Havana he was persuaded to return to commercial life in the city, soon afterward selling the apiary, owing to inability to look after it properly.

Although fully occupied with business cares and responsibilities, Mr. de Beche still longed to make another venture in bee-keeping; and finding a willing partner in his long-time friend and companion, Mr. F. L. Craycraft, they selected a location in the suburbs of Havana, and in the fall of 1899 they brought from Florida over 200 nuclei, to which they devoted their spare moments mornings and evenings. From this beginning they put in two out-apiaries the following year, and up to the present time have sold over 1000 nuclei from the first yard, besides having three other apiaries located in the interior.

On the death of our lamented friend Mr. J. H. Martin, "Rambler," Mr. de Beche bought the apiary founded by him at Taco-Taco, where, from about 200 colonies originally left by Mr. Martin, he has had them increased to 800 colonies located in four yards.

Reference has already been made to the part taken by our subject in the struggle of Cuba for liberty. In the early part of this, an event occurred which came near assuming international importance. The papers were full of it at the time; but the *real inside history* involving the acts of the principal actor, Mr. F. H. de Beche, had not been given to the public, because there were good reasons why they should not then be known. But now that the war is over, and peace has been restored, these reasons no longer exist. Incidentally I learned of the part played by Mr. de Beche through a friend; and when the former visited us I quizzed him much; but on account of his natural modesty I did not get many of the details; but I secured his permission, after much coaxing, to get them for publication from Mr. Harry Howe. After some correspondence I secured a full account. It is with no little pleasure and pride that GLEANINGS is able to give this interesting piece of unwritten history for the first time. I am sure that our readers will be glad to know that it was a *bee-keeper* who conceived and carried into execution the plot that resulted in the release of a noble young woman from prison where she had been incarcerated for no other reason than that she was the daughter of a brave father who had done much for the cause of freedom in Cuba. The romance would have been complete if Mr. de Beche had married the young woman he rescued; but the fates decreed otherwise. The account is as follows:

A THRILLING ACCOUNT OF MR. DE BECHE'S
PART IN THE RESCUE OF A YOUNG WOMAN
FROM A SPANISH PRISON.
BY HARRY HOWE.

No story of Mr. de Beche would be complete without some mention of his adventures during the Cuban war. Being a French citizen, he thought he could best serve the cause of Cuban independence by staying in Havana, where he was able to be of great use to the Cuban cause. Among his many adventures the rescue of Senorita Evangeline Cossio from prison is the most important.

This talented and beautiful young lady was arrested and thrown into the *Recojidas* prison for fallen women, upon a trumped-up charge to gratify the spite of a high Spanish official. Many attempts to secure her liberty failed. United States Consul, General Lee, tried to get her released or even transferred to another prison, but the Spanish officials refused to act. A petition signed by thousands of women, among whom was the Queen of England, met the same fate. Her case was taken up by prominent newspapers of the United States, and, as a last resort, the *New York Journal* sent a reporter to Havana to rescue her at whatever cost.

Among the daring spirits whom he approached was Mr. F. H. de Beche, who told him that the plan of storming the prison was sure to fail. The Spanish spies were everywhere, and it would not be possible to get together enough men to storm the prison without their knowing it. After thinking the matter over he said that, if he could have entire control of the matter, he would attempt the rescue, but only on the condition that his name be not mentioned in the report of the affair.

He made a careful study of the situation, and finally disguised himself as a drunken cartman. He then rented a house directly across the street from the part of the prison where Sta. Cossio was confined. Then he bought some second-hand furniture and moved into his new quarters. At another time he secured a long ladder and some boards.

The day set for the rescue, an employe (or clerk) of Gen. Lee visited Sta. Cossio and gave her two boxes of candy, of which one was drugged. During the afternoon Sta. Cossio gave the woman in the room with her some of the good candy, and at bedtime she gave both of them some of the drugged candy. Early in the evening Mr. de Beche extinguished the street-light that was in front of his house. He had taken no one into the secret of the entire plot, but had given each a part. At the appointed hour he was on the roof of his house with the reporter for the *Journal*, and an Irish captain in the Cuban army, noted as a fighter. They watched until the police had passed on their round, and then shoved the ladder across the street to the window of the prison, and de Beche quickly ran across, and, with a sharp, well-greased hack-saw, cut off one of the bars to the window. When he started on the second one Sta. Cossio whispered that one was enough, and that she could slip through, so he started to take his tools back and to put a board on the ladder for Sta. Cossio to walk over. He had taken only a few steps when he felt the ladder sway and heard her coming after him. He turned in time to take her hand and keep her from falling. And so they crossed the ladder high above the street in the dark, de Beche walking backward, leading Sta. Cossio. The slightest misstep would have been fatal, and yet there was need to hurry, for

at any moment the guard might see the open window, or the police in the street might see the ladder. But they arrived safely to the roof, where de Beche left the others to hide the ladder and other things, while he hurried to the street and around a corner, where he met a friend with a coach. Hastily he put Sta. Cossio into the coach and jumped into the seat, leaving his friend in the street. He drove around for a while to make sure he was not followed, and drew up in front of a fine house where the owner was waiting. Sta. Cossio ran into the house, and de Beche, after another drive around the streets, returned the coach to his friend. No one but the people where she stayed knew what became of Sta. Cossio. After two weeks or so, she was taken on a



PERSONAL RECOLLECTIONS OF THE REV. L. L. LANGSTROTH.

Some Fleeting Sidelights Thrown on the "Father of American Bee-keeping."

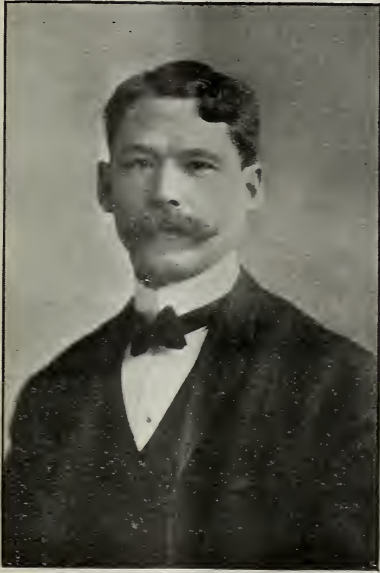
BY WALDO F. BROWN.

My acquaintance with Mr. Langstroth began before the war, as he located in Oxford in the '50's. I was not interested in bee-keeping, and knew little or nothing about the man; but soon after his arrival he called on me at the farm. I found him to be one of the most interesting persons I ever met—a splendid talker, one who caught your attention and held your interest, not only by the wonderful number of facts he presented, but more by the enthusiasm he showed. It made but little difference what subject was broached, Mr. Langstroth seemed to have mastered it. But his specialty was his love of nature and the interest he took in every thing connected with country life. He was one of the most companionable men I ever met, and I was at once drawn to him, and an intimacy began which lasted until his death.

I recall that, during the first call he made, an older brother was present who was a student at Miami University; and knowing that Mr. Langstroth was a preacher he supposed he knew little or nothing about farming; and so as we walked over the farm he began enlightening Mr. Langstroth by displaying his own knowledge of farm life and work. Mr. L. was a good listener as well as a good talker, and he encouraged my brother until he had delivered quite a dissertation on farm life. During the talk we found that Mr. L. seemed to possess knowledge of every thing connected with the growth of plants, insects, etc., and that his knowledge was as much greater than ours as the sun is greater than a tallow candle. Later, after getting acquainted with Mr. L. my brother often referred to the time when he undertook to instruct him on points on which Mr. Langstroth knew ten times as much as he did.

I think I have never met another man whose common conversation was so instructive as Mr. Langstroth's, or who had such vast resources. Added to this was a happy and impressive way of imparting instruction, and his conversation never sounded "preachy;" but by adroit questions he would draw you into discussions and enable you to show your very best side.

Mr. Langstroth was a deeply religious man, and his piety was of the cheerful sort. I have rarely met a man who impressed me so much in the belief of the fatherhood of



F. H. DE BECHE.

ship, disguised as a boy, smoking a big cigar. Although the ship was searched, she escaped safely to the United States, where her story helped very much to hasten American intervention in the Cuban war.

The morning after the rescue the whole city was in a ferment. More than twenty arrests were made, but no one who had taken part in it was even suspected.

On the roof of the house the police found the ladder, saw, boards, and a big revolver which the others had left in their hurry to get away.

Mr. de Beche is as modest as he is brave, and it was only after a long acquaintance and much urging that he consented to tell of his part in this dramatic escape. All the parties are prominent socially in Havana now.

Paso Real, Cuba.

God and the brotherhood of man. We attended the same church, and Mr. L. usually met me at the church-door at the close of the meeting for a brief conversation on weather conditions and crop notes; and whenever we had suffered from drouth, and a timely rain had fallen, he would extend his hand to me and begin with that beautiful quotation from the 65th Psalm, "Thou visitest the earth and waterest it;" and that psalm has been a favorite of mine ever since, and I always think of Mr. Langstroth when I read it; and it has been my practice for many years (when a timely rain has fallen) to read it at family worship.

Mr. Langstroth was naturally of a most happy disposition, but he had an infirmity which almost amounted to insanity. It was a disposition to melancholia; and often for six months together he would shut himself in his room, refuse to see callers, and seem utterly wretched. He told me that he spent his time playing "solitaire," and he believed that was all that kept him from insanity. He would suddenly come out from the influence of these spells as bright and happy as ever; and he said to me he believed he enjoyed more happiness than the average man; for when he was free from this infirmity he was supremely happy.

Mr. Langstroth was a most eloquent preacher, and a speaker who would hold his audience perfectly. He took an active part in the business affairs of the church; and I recall once when there had been a feeling of depression in our business meeting he made an address in which he used the following illustration to show that our church was no worse off than others, and that the churches of to-day were very much freer from jealousy and troubles which hinder their work than in the former days. His story was as follows:

An old farmer in Kentucky, who lived on a farm where they were obliged to grub the sassafras sprouts every spring from the cornfields (they called them "sassafig" in the vernacular), finally became so discouraged he determined to locate in a better country. He sent two of his sons to the then new State of Missouri, of which he had heard wonderful stories as to the fertility of the soil and healthfulness of the climate. Their first letters were optimistic, and the old man became so enthused by them that he determined to emigrate to Missouri. He could not sell his farm, but made some arrangement to have it cared for by a neighbor, loaded his effects on a wagon, and started on his long journey. According to the custom of the locality, the neighbors gathered to the number of a score or more to ride out on horseback with him as far as they could and get back that day; but as they passed the postoffice the postmaster handed him a letter. In those days of 25-cent postage the receipt of a letter was an event in the neighborhood, and he stood up in his wagon to read it aloud to his neighbors. It contained bad news. The frost had ruined the wheat crop; the corn was nearly a fail-

ure; his sons had shaken with ague until they had lost courage; and the letter closed with the following words: "And, father, sassafig grows here too." The old man turned to his neighbors and said, "I've been fitin' sassafig all my life in old Kaintuck, and I'm not goin' to a new country to begin the battle over again." And he turned his team around and drove back home.

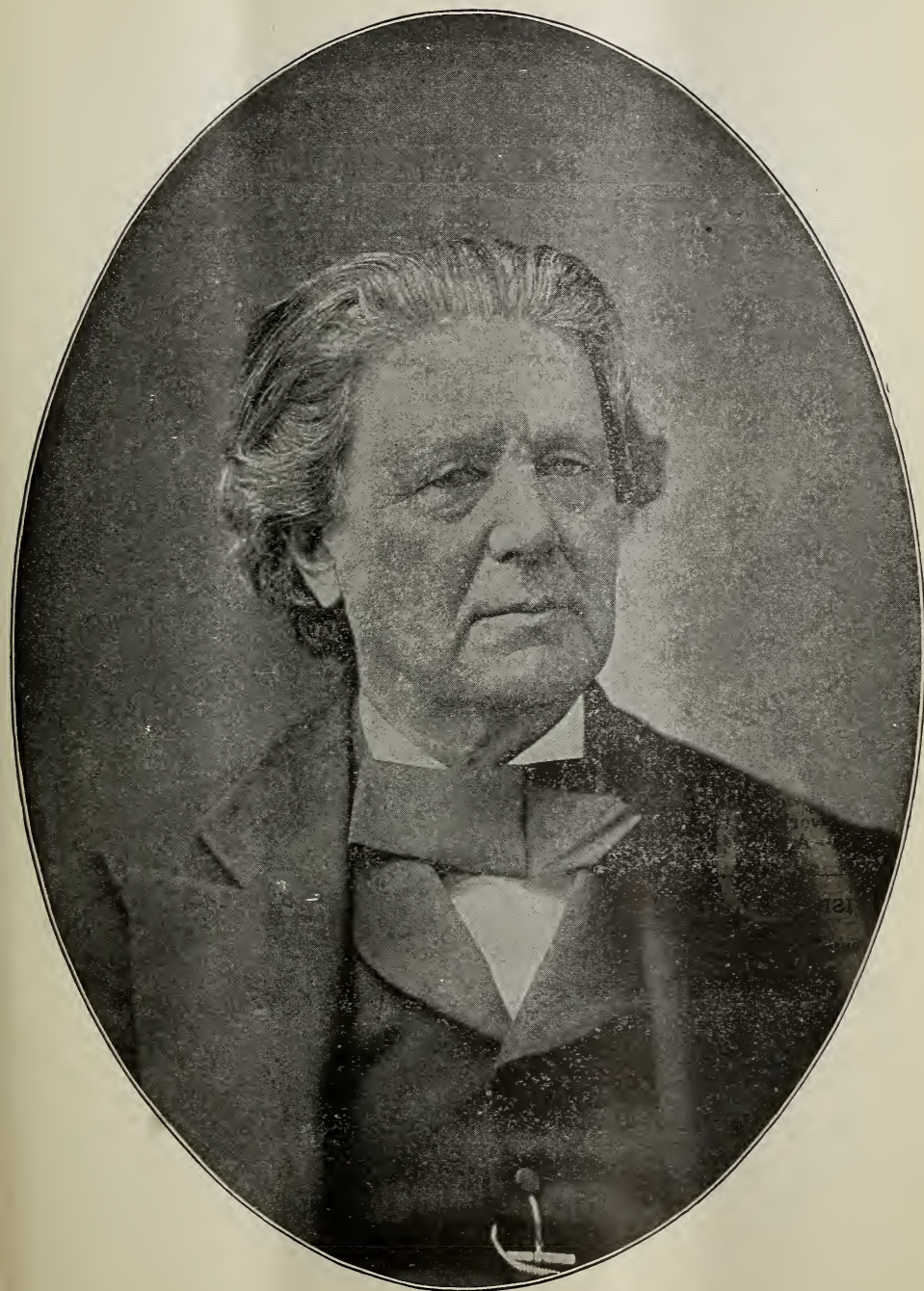
Mr. Langstroth was intensely patriotic, and rendered valuable service with tongue and pen, as well as sending his only son to the front. In the pulpit, on the streets, and through the press his influence was known and felt for the encouragement of the soldiers and the help of the widows and orphans. I was never more impressed by a sermon and the recitation of a poem than one Sunday morning when Mr. Langstroth was greatly depressed, and came into the pulpit and began the service by reading from the psalm in which occurs the verse, "Thou executest righteousness and judgment for all that are oppressed." Without lifting his eyes from the Bible, or changing his tone, he broke forth in the "Battle-song of the Republic,"

Mine eyes have seen the glory
Of the coming of the Lord.

He recited the whole poem in such an impressive manner as to fix the incident indelibly in the minds of his hearers.

One Sunday morning he preached a sermon from the text, "Who can find a virtuous woman? for her price is above rubies?" He became so interested in his subject, and so enthusiastic, too, that he lost all track of time, and held his audience spellbound, until finally on looking at his watch he found he had been preaching an hour and a half, while those of us who had listened had not realized the lapse of time.

I knew Mr. Langstroth more as a minister and a friend than as a bee-keeper; but his name will godown to posterity as the inventor of the movable-frame hive which revolutionized bee-keeping, and made the success of later days a possibility. When I was a boy, if we wanted honey we killed the bees with brimstone and removed the honey. By Mr. Langstroth's plan the honey could be removed in the best condition, and the bees saved. He was an indefatigable worker along this line, and you could see him as soon as daylight broke in the long summer days out in his apiary working, and he kept it up until late at night. He spent whole days studying and investigating the habits of bees, and probably added more to the knowledge of bee-keeping, and to making it profitable, than any other man of his time. He had no fear of bees at all, and claimed he had been inoculated with bee-poison until he was immune. His talent and valuable work were appreciated by the leading bee-keepers of the United States, and his presence at their conventions was always welcome, and they voted him some substantial rewards for his investigations. His book, "Langstroth on the Honey-bee," was, at the time of its publication, far in advance of



L. L. LANGSTROTH AT THE AGE OF 65.

any thing that had ever been published on the subject of bee-keeping.

Mr. Langstroth lived to a good old age, dying Sunday, Oct. 6, 1895. He was still active in mind and body, and was conducting a communion service in a church in Dayton. He began the service, and suddenly stopped and said, "I beg pardon. I shall have to sit down." He sat down in his chair, and died immediately.

I look back over my acquaintance and intimacy with Mr. Langstroth as something to be grateful for, and feel that I, although not a bee-keeper, owe him a personal debt of gratitude for the inspiration I received and for what I learned from him.

[The above brings back so vividly my recollections of father Langstroth that it almost seems as if I could see and hear him talk while reading it over. I can heartily indorse every point in the description made by friend Brown. I have told you in the introduction to the A B C book with what joy and enthusiasm I read the pages of Langstroth on the Honey-bee, in 1865. I very soon pushed inquiries that resulted in finding Mr. L. still living; and then commenced a pleasant correspondence that was kept up more or less until his death. There was something in his makeup that constantly reminded one of some of the great benefactors of our age—Benjamin Franklin, for instance. His life was so unselfish that he might have lacked the necessities of life were it not for the many able and willing friends that he was constantly making right and left. May the Lord be praised for those like father Langstroth, who not only make this world a better one while they live, but the memory of whose works will help to make the world better after they are dead and gone.—A. I. R.]

DIVISION OF LABOR AMONG BEES.

Young Bees Nearly Blind, and Why.

BY E. F. PHILLIPS, PH. D.

Baron von Berlepsch, in the *Bienenzeitung* for 1867,* records some careful experiments conducted by him to find at what age the worker bees normally leave the hive. The method used by him was to put an Italian queen in a colony of common black bees and then watch the young Italian workers as they appeared. This was done several times, and each time the time of the first flight of the young bees was recorded, and they were then followed until they became field bees. This was probably the most careful observation made up to that time, and a good deal has since been added.

Without going into all the details of the records of von Berlepsch and others, we can briefly outline the history of a common worker during the summer months. After

leaving its cell in the brood-frame the young bee remains in the hive for at least seven days, generally nine. For the first day or two it is weak and does no work of any kind; but later it takes up the work of nursing the larvæ. If there is any wax to build, it is the younger bees that secrete it. At about the age of seven to nine days, depending on the weather to a great extent, the bees begin to take short flights in front of the hive-entrance on warm afternoons, not to collect honey or pollen, but to cleanse themselves; and in these first flights they rarely fly more than a few feet from the hive, and on their return they take up again their labors of nursing and wax-building.

When about sixteen to twenty days old they begin to take foraging trips, and normally never do any other work until they die. It need scarcely be added that, when only old bees are present in the hive, they do the nursing and cell-building; but under the usual conditions each worker goes through this life-cycle.

Two or three points are worthy of consideration in this connection. In swarming, the young bees as well as the old fly from the hive and leave with the swarm, so we may conclude that it is not weakness that keeps the bees in the hive or that limits their earliest flights to a few feet from the entrance. We know, too, that the sense of smell is very highly developed in bees, and in their early flights they might easily be guided by this sense entirely, so that, if quite blind, they could find their way back to the hive. We may, then, conclude that sight is not a highly important sense to a bee up to the time it begins to take foraging trips. Even in swarming, when the young bees do fly for some distance they are doubtless kept from wandering too far away by the scent which we know is present in a swarm.

In seeking for an explanation for the habits of any animal it is advisable, if possible, to compare these habits with those of some other animal nearly related, or of somewhat similar habits. Ants, which belong to the same order of insects, the *Hymenoptera*, also have a queen, males (or drones), and undeveloped females. The undeveloped females are either workers or soldiers for the protection of the colony. In some species there is more than one kind of worker, and the different types have different duties to perform. In such cases the workers do the same kind of work all their lives, and the soldiers are for the protection of the colony only, and do none of the work which belongs to the workers. Here, then, the division of labor is carried out to a much higher degree, and the individual is destined to certain duties by its very structure. In the bee the same thing is brought about by the bees taking up various duties at different ages. If the division of labor in ants is caused by structural differences, how are we to account for the same thing in bees where we do not have more than one type of worker?

We may explain this by saying that the

* Translated in *American Bee Journal*, 1867, vol. III., pp. 87-9.

bee knows by instinct that it must make cells and feed the larvæ while it is young; but instinct is blamed with too many things already, and it is better to find, if possible, some real cause rather than fool ourselves by attributing all the actions to a thing which we can not define. I do not mean to imply that it is impossible for instinct to bring this about, but I think it very improbable, and personally prefer some other explanation.

In my work on "Compound Eyes" I noticed that the entire eye is covered by unbranched hairs; and in trying to find some use for these I was entirely at sea until I noticed that, although the young bees have their eyes well covered, the field bees have almost every hair removed. These hairs are so dense in young bees that it is difficult to conceive of the bee seeing any thing clearly; but there is no such obstruction for old bees. It then occurred to me that possibly this was in some way connected with the division of labor which we find.

It has been shown that a young bee *can* get along without sight, since none of its actions require acute vision, and the presence of these hairs indicates that it is probably nearly blind. Can we not, then, explain the confinement of the young bees to inside duties of the hive by the fact that it can not see to do any thing else? We do not call it instinct when a soldier ant protects the colony and does none of the work of the workers, since it is structurally unable to care for the larvæ; and it is equally unnecessary to attribute to instinct the fact that the young bee does not gather honey, since it can not see to fly further from the hive than the distance to which scent will guide it. There may be some other structural difference between young and old bees; but it seems to me that these small hairs must be of great importance to the colony in compelling bees to do the different kinds of work. Old bees can build comb and feed larvæ, but do so only when it is absolutely necessary; but a young bee can do nothing else.

Medina, O.

PRIORITY RIGHTS.

A Reply to Dr. C. C. Miller.

BY WM. W. WHITNEY.

Dr. Miller, in *Stray Straws* for Aug. 1, seems to take exception to the conclusions Mr. Ethics came to after doing some "hard thinking," and thinks his reasoning (or, rather, that of the farmer's) superficial. He seems to think that the farmer who owns the land has not even an equal right or claim to the nectar with some other person who has no property right in it, if, perchance, such person happens to keep a few bees.

* The hairs of the rest of the body of the bee are branched, such hairs being characteristic of the entire family of bees, the *Apidae*.

In the case referred to by the doctor, no claim was made of *exclusive* right of the farmer, but a denial of the exclusive right of the bee-keeper. No objection of the farmer's to Mr. Ethics' keeping his bees in the neighborhood was made. If each farmer could fence his farm against the outside bees, I think no one would question his right to the nectar, which, it seems to me, would become as clearly his property as any thing produced on his farm. But the fact is, it's impossible to identify, trace, or control this natural product; and it is well that it is so. It is free, like the air we breathe, for every one to appropriate.

Dr. Miller seems to think the proposition a strange one, that the farmer who owns the land has the same moral right to keep bees for the production of honey that he has to keep cows for the production of butter and cheese. Query: Hasn't he? who has a better right? The matter of ownership by the farmer is not the question to be considered at all; but it is the *exclusive* right of the pioneer bee-keeper to monopolize a given territory.

But, for the sake of the argument, suppose we grant his prior right, and that a law be passed fixing all the pains and penalties for the crime of overstocking, and that we have an inspector of a given territory—the foul-brood inspector might be transformed into a sort of nectarometer for the purpose of regulating the matter of overstocking, and to protect the rights of the pioneer. How are we to determine the minimum quantity of surplus comb or extracted honey which shall indicate that any given territory has been overstocked? In some years the same locality furnishes much more nectar than in others; in fact, it could scarcely be overstocked; in others, no nectar at all, and bees require feeding.

Some have better success than others in the same locality. One year (a rather poor one) with a few colonies I was fortunate enough to secure about 1000 lbs. of surplus, while many of my neighbors with as many or more bees got little or none at all. Those who secured none might claim that the locality was overstocked, while I might deny it. With all the varied conditions of weather and management, how are we to regulate this matter, anyhow? Some years it's impossible to overstock—tons of nectar going to waste—then, again, none at all, and bees have to be fed; even one colony might be declared by the nectarometer as being kept in violation of law.

During a winter like the last, the bees of the pioneer may have all died, and those of the beginner last year (a good one for honey) may have gone through the winter all right and come out in splendid shape for business this last spring; but the prospects this season are not flattering, and the nectarometer rules that, under the law, the locality is fully stocked. But here is our pioneer with a lot of hives, frames of brood-combs, supers, etc., which he does not know what to do with. Now, here you are. The beginner

of last year in, and the pioneer with every thing to do business with but bees, *out*. It's too bad. It's "superficial" thinking indeed that prompts any one to be "foolhardy" enough to advocate the passage of a law for the protection of a bee-keeper in the right to monopolize a given territory when he has no more moral right to it than he has to the exclusive use of the atmosphere.

I notice that some specialist makes a kick because I suggest that every farmer should keep a few bees, and asserts that bee-keeping is a specialty. So is fruit-raising a specialty; but is that a bar to a farmer raising fruit? The most natural place in the world for fruit is on the farm, as it is for keeping bees. Floriculture is a specialty; but every farm should have a flower-garden; poultry-raising is a specialty; but the most natural place in the world for a few chickens is on the farm. Any business may be made a specialty, but does that fact offer even a plausible reason why a mixed business should not be carried on if one chooses to do so?

Why, Mr. Editor, such a theory carried to the extreme would drive a large part of the world's enterprising workers out of a large share of their business. Where would the A. I. Root Co. be in such an event? But it may be said that manufacturing bee-keepers' supplies, keeping bees, printing a bee-paper, etc., go together; but do they, any more than raising fruits, flowers, and nearly all kinds of grain, and bee-keeping?

Yes, sir; notwithstanding Dr. Miller's Straw kick in favor of bee-keepers' patent right to a monopoly of given territory, and the Specialist's special kick in the *American Bee Journal*, I still assert, without fear of successful controversion, that there is no such thing as a prior right of a bee-keeper to territory he does not own, and that he can not acquire such right by simply squatting and commencing bee-keeping. The claim that any person has such right is too ludicrous to merit serious consideration. Also that the farm is the natural place for keeping bees, and that every farmer should have some good work in his library on bee-keeping, and should take some bee-paper, and, if situated so that he can, should keep a few colonies of bees for recreation, study fertilization of flowers, and to supply the table with honey, providing that they are properly kept, as every thing on the farm should be, otherwise they should not be kept at all.

ARRANGEMENT OF HIVES IN AN APIARY.

Cutting Out the Hive-rabbit; Honey Failure in Jamaica; Strength of a Bee, etc.

BY JOHN BOWEY.

Mr. Root:—On page 648 you ask why those big stones are put one on each hive. I myself should like to know why. I have seen them many times in California, only, of course, in apiaries where quilts or cloths

were in vogue. Is it not time quilts should be a relic of the past? I see no earthly use for them, only, as a contributor to GLEANINGS recently said, they are good for puffing the smoke down between the frames.

I have seen, hundreds of times, on lifting the quilt, the top of the brood-chamber present the appearance of a solid board plastered with dead bees and propolis rather than a series of frames. As I observed this state of things I said to myself, "Deliver me from bee-keeping after this sort."

You also interrogate: "I notice that the hives are in regular rows. Does not this confuse the bees more or less?" You say that, in your experience, robbing is worse; that young field bees go into the wrong hive and are often killed. My experience and yours along this line are at variance. My 300 colonies are arranged in regular rows, 8 feet between the rows and 2 feet between the hives, all rows facing east during the height of a logwood flow of honey. When the bees tumble in heaps in front of the hives, too weary to reach the alighting-board, if they were entering the wrong hives there was no indication; every bee at every hive seemed equally welcomed. Surely if killing had been the order I should have seen it. As to robbing, I have had nothing out of the common.

Again, I have visited apiaries where four-frame queen-rearing colonies were in rows not more than three or four inches apart, each hive the same color and pattern, and not a strain to distinguish one from the other. I said to the apiarist (who, during the year, rears thousands of queens), "Do you have trouble with the queens entering the wrong hive being so closely in touch with each other?"

"Not at all," said he. With him I am inclined to the opinion that both bees and queens scent their own hives rather than sight them.

Dr. Miller, page 636, refers to a scheme of cutting out the rabbit and mailing a cleat on the end of the hives. This would be exactly to my liking, not with the view of lengthening the top-bar, but because it would give a bee-space, thereby eliminating the accumulation of propolis that is such a dirty nuisance in hives as they are now made. I have a number of such supers in use, and what a pleasurable contrast the ends of the top-bars in these supers are—perfectly clean from propolis, while those in the Dovetailed are glued solid at the ends, and in many cases the gutter formed by the tin rabbit is also choked with the same sticky mess. In a hive of this kind the staple-end frame must necessarily be used.

"One who was there," pages 653 and 654, must evidently have enjoyed a delightful time at the truly Bible supper as he terms it. The milk and honey sounds Mosaic; but pray, Mr. Editor, where did the Israelites in days of yore get their Jersey butter and rolls from, and the other unmentioned edibles, all raised within a mile of the feast? To me it appears more like a supper pre-

pared on the American plan. The good book tells us it is not good to eat much honey. I hope the big chunks of honey that disappeared left no ill affect on the brethren.

On page 657 J. Baptiste speaks of the honey crop in California, Cuba, and Cape Haiti being a failure. To this list you might add Jamaica, which, while not a total failure, old bee-keepers declare it to be the poorest ever known. Our honey varies much in color and flavor, with all the gradations from the fine white logwood to a deep dark.

There is the readiest sale for all the island can produce, but the prices are low. Logwood is 42 cents per gallon (14 lbs. to the gallon); the darker grades are 32 cents per gallon.

I made a few observations during the past season. On one occasion I found two virgin queens trotting over the cluster of bees outside a populous colony. I captured one and gave her to a queenless colony. The second escaped among the bees. A few days later a big swarm came out.

Another strong colony cast a small swarm; 15 minutes later it cast another that more than filled a ten-frame hive. Tearing open a well-developed queen-cell I found nothing but an egg.

Early one morning I noticed a chain of bees hanging in front of one of the hives. I got on my knees and counted 24 in all, 23 hanging on to the one leg of the topmost bee. Another morning I counted 29. How many more there were I could not tell, as they were bunched at the bottom, pendulum fashion. I mused over the strength of that bee's leg, and concluded it was a feat the like of which I had never seen nor heard of. I think it overshadows Samson carrying away the gates of Gaza. My weight since coming to Jamaica is 116 pounds. I imagined 29 times this weight hanging on to my one leg, 3364 pounds. Would the coroner charge the jury to prohibit my friends from viewing my remains? How did that bee do it?

The best fuel I find here for the smoker is ants' nests. It is similar, I presume, to that which the ingenious Japs gather *en route* for kindling their campfires. If left untouched in the smoker it will burn for hours. We have large red ants here that are a terror to bee-keepers. Colonies need to be strong to resist their onslaught. I have known 50 nuclei to be annihilated in less than a week. When once gaining entrance they know no surrender.

A. I. Root's little automatic greenhouse seems the thing. I wish I could add to his collection some of my maidenhair ferns and orchids. The woods here abound with these dainty creations. One of my orchids produced 9 flowering stems. On one stem I counted over 200 flowers. It was worthy of the camera. I hope, Bro. A. I. Root, there will be lots of flowers in the better world. If not, I shall want to visit Jamaica occasionally in quest of its tropical beauties.

In the altitudes the climate is ideal, pleasantly cool at all seasons; but in the plains

one less orthodox than myself would say it is as hot as hades.

Kingston, the capital, principal port, and center of commerce, is said to be the second hottest place on earth. I arrived here the end of last November. I spent my first week in Kingston. The first thing I had to do was to discard completely all my California clothing and don the very thinnest over and under wear, and even in this attire it was like living in a Turkish bath. Some of my fellow-passengers came to the city on one boat, and were impatient to return to Port Antonio on the next. The length of days, and the temperature, vary but little the whole year round. Our proximity to the equator explains why.

May Pen, Jamaica.

[I suppose that some of our friends still think the 20-lb. stones indispensable; but I wish some of them could be compelled to work the other way, with the bee-space and thick top-bars for a season or two—without a quilt or cloth—cover next to bees. Wouldn't they change their minds? I think they would. But I very often see people who continue to use an old way, and one that involves more labor than a modern way that saves both time and money. When we think we are the least prejudiced we are the most so sometimes; and unfortunate is the man who has tried only one way and is sure that *that* is the only way.]

We have tried hives in regular rows, all facing one way; and we have tried them in other ways in scientific groups, by which no contiguous entrances have the same appearance; and our experience season after season shows to us conclusively that, all things considered, it is better to help the bees in recognizing their home, especially when they are engaged in queen-rearing. I admit that in Jamaica, with your heavy honey-flows it would not make so much difference. But even in Cuba, where the conditions are much the same, the majority of the Cuban bee-keepers prefer to have their entrances so arranged that the bees are not only guided by scent but by sight. I will admit that scent is a very strong factor in determining their home; but it is probably not the only one.

About that Bible supper, when we speak in poetic language, we are supposed to have poetic license, you know.—ED.]



CELLARS VS. OUTDOOR WINTERING.

Having lost the greater part of my bees the past winter I am going to try wintering in the cellar. We have one, somewhat damp, that contains a furnace for heating

the house. Will partitioning off a part of the cellar with inch boards covered with some heavy paper, and having in this apartment a window from out of doors, regulate the heat so that the bees will winter all right.

How large a part should be partitioned off?
Pierpont, O. EDGAR WILLIAMS.

[Your bees can be wintered in your cellar, but you must be sure the temperature of the furnace-room does not materially affect the temperature of the room in which the bees are confined. A board partition would hardly be tight enough. Temperature should be kept as near as possible about 45 degrees. Very much of a fluctuation above or below this would result in the death of a good many bees. Last winter was an exceptionally hard one, and I would advise you to go slow about wintering in the cellar; for in the majority of localities in Ohio, unless conditions of temperature can be absolutely controlled, you had better winter outdoors, providing, however, that you have good hives double-walled, and protected from the prevailing winds.

The space for 80 colonies should not be less than 8×8, and better 10×10. There should be a window which can be opened, and the wall that projects above ground should be earthed up or protected with

cers in home towns, the "manufactured-honey" story would soon die out.

This spring, when bees began to gather honey fast from white clover there would be many bees dead and dying around in the grass, sometimes in hollows in the ground. We feared for a time it would decimate our hives, but in a few days it passed away. We do not know the cause. We then feared some one was trying to poison them, though we mentioned it to no one. We knew they bothered our neighbors sometimes; but if such is the case we had better say but little about it, and try to kill the neighbors' trouble with kindness if possible.

Our bees have done fairly well this year, though not yet more than half as much honey as last year has been gathered. But we hope for a fall honey crop, which we did not get last year. Bees are in good condition for a fall crop, and frequent rains give promise of more honey-bearing weeds, such as smartweed and teasel.

Roseville, Ill. MRS. L. C. AXTELL.

[There may be something in your idea of putting out honey with stains or marks of the hive on it in your own locality; but in the large markets, at least, cleaned and carefully sorted sections bring a higher price as a rule. The public always prefers something really fancy.



A RETURNING SWARM.

straw, not so much to keep the cellar warm as to keep it cool. In Ohio the great difficulty is keeping the cellar cool enough. Our machine-shop cellar that gives such good results furnishes conditions that will not be found in the ordinary house cellar.—ED.]

We have noticed exactly the same thing you describe, of bees dying during the honey-flow. If any of our readers are able to account for it we should be glad to have them write us.—ED.]

WHY SECTIONS SHOULD NOT BE CLEANED OR SCRAPED; BEES DYING DURING OR AFTER A HONEY-FLOW.

When we used to clean our sections so nicely, people used to say our honey was manufactured; but since selling it direct from the hive with wax on the supers, they seem satisfied it is made by the bees. If every one could sell his honey in that way to farmers by the superful, and to the gro-

A RETURNING SWARM.

I am sending you a half-ton of a returning swarm. The queen was caught in the trap, and when the swarm came back from the plum-tree she was allowed to enter. All my bees are Italians, and very gentle. This colony gave me 133 choice sections, 3½×5. My average was over 90 for the apiary. I sell all my honey to the local trade, and can't get enough.

F. H. DRAKE.

East Brookfield, Mass.

THE HONEY SEASON ON THE EAST COAST OF FLORIDA; OVERSTOCKING AND PRIORITY RIGHTS.

The honey crop on the east coast of Florida is short — in some places a failure. On the west coast the yield was good. From about 700 colonies Mr. Marchant extracted 258 barrels, of 32 gallons each; also got about 1500 lbs. of comb honey. The bees were located in three apiaries on the Apalachicola River—one, two miles *north*, the other two miles *south* of the home apiary. You will see the bees did not work a very extensive territory, but all were busy as long as the flow lasted, which was about 25 days. We consider this a very fair yield, and do not think the range was overstocked.

In regard to overstocking a range, we may say that some ranges are overstocked before any bees are put there, or otherwise some people will stock a range that is not capable of supporting bees at all, so such a range can easily be overstocked. Other places will seem some years to be incapable of being overstocked, when the next year the range will yield little or nothing. There is no definite way to tell what is *going to be*; but common sense should tell a person that it is policy to get as far away as possible from a range already occupied with bees; for if such range is not filled to its full capacity the people there will, no doubt, put all the bees there that can be kept with any profit one year with another. Then we may ask how far an apiarist's rights of priority extend. Is it as far as he pleases, or just as far as he can occupy it and do it justice? May be some of us demand too much. If my neighbor locates an apiary on a range adjoining my own, but beyond the flight of my bees, is it any of my business? or have I a moral right to claim every thing that joins me? This matter will never be settled to the entire satisfaction of every one; but let us not claim too much as ours when we can show but a poor title or perhaps none at all, only to say, "I was here first, and claim all within reach." If you have a nice apiary on only a fair range, and I come and establish another one just over the street from you, it shows a very poor business policy on my part, and little regard for what is right from a friendly point of view; but every one will have his views all the same.

Hollister, Fla. M. W. SHEPARD.

QUEENLESS AND BROODLESS; WHAT DOES IT MEAN?

What is meant by making a colony queenless and broodless? Do you remove all the brood at the time you do the queen, or simply wait four or five days until all the eggs have hatched into larvæ?

Gorda, Cal. W. N. HUBBLE.

[To make a colony queenless and broodless simply means that we take away queen and brood in all stages, including eggs. The purpose of this is to get the bees in a condition where they are crying for prepared cells, brood, eggs, or a queen. Then when

they are finally given larvæ or eggs they will commence cell-building, and feed the cells lavishly with royal food.—ED.]

OUTSIDE FEEDING.

Several of my apiaries are located some miles from any other; and when I find that they are short of stores for brood-rearing I feed granulated-sugar syrup outside. I have fed a barrel of sugar at a time, and had no difficulty with robbing. I leave the entrances of the strong colonies wide open, and contract those of the weak ones in proportion to their strength. It seems to me quite as satisfactory as inside feeding, with much less trouble.

E. B. ROOD.

Braidentown, Fla.

[See answer to C. E. Woodward in our last issue, p. 811, and editorials in this one.—ED.]

MORTALITY OF BEES IN UTAH.

I saw in your July 15th issue an article on mortality of bees in Utah. I saw the same disease, and it stood altogether in the honey that was in the hive. The remedy we used for it was to extract all the honey from the hive and feed the bees. The disease described in GLEANINGS just matches the one I saw. The bees, old and young, would crawl out and begin to hop, and some would go as far as fifty or sixty feet, hopping till they were exhausted. After the colonies were thus treated they came out all right.

H. A. ROSS.

Evansville, Ind., July 21.

[This is respectfully referred to the sufferers or losers of bees in Utah.—ED.]

ARE COMBS AFFECTED WITH PICKLED BROOD FIT TO USE AGAIN?

Pickled brood got into my yard pretty badly this spring, and I have saved the combs and honey. Would the combs and honey be all right to use again next year? I have been reading on page 763 what A. J. Halter has to say about it. But with me, it began with two colonies with the first brood they had in the spring, and kept spreading all through the yard.

E. A. HARRIS.

North Petersburg, N. Y.

[I would not advise the use of combs which have contained pickled brood. It is cheaper by far to melt them up and use foundation in them again. The combs of honey certainly would not be fit to give again to the bees. While pickled brood is not a serious disease, it is very annoying, cropping out every now and then, and then disappearing.—ED.]

Under ordinary conditions will bees store enough honey in a one-story eight-frame Dovetailed hive to last them through the winter?

ALBERT HURT.

Memphis, Tenn., July 29.

[Probably not; but a good deal will depend on conditions. If there is no fall hon-

ey-flow it will probably be necessary to give a light feed in the fall.—ED.]



The meek shall inherit the earth, and shall delight themselves in the abundance of peace.—PSALM 37:11.

I confess, dear friends, that, with the war between Japan and Russia, and the various strikes now going on in different parts of the United States, it does not seem, especially to the casual observer, that the meek are making very much headway in inheriting the earth; but if we take a calm view of things, especially matters that are going on under the surface as well as above, I think we shall see that the Bible promise is being fulfilled. God's people are surely making progress; intemperance is being put down, and wicked men, with millions of money back of them, are beginning to understand that there is "a God in Israel," and that they must obey the laws of our land.

In a recent trip of 400 miles through Ohio I passed through Ashland, Mansfield, Marion, Delaware, Marysville, Springfield, Dayton, and Xenia, besides many other good-sized towns and cities. It was a pleasant surprise to find almost every one of these cities torn up more or less in the work of making better thoroughfares. I passed through so many different towns in a brief period of time that I can hardly remember now which was which; but in quite a few I found not only beautiful streets paved with vitrified bricks, but in three or four there were asphalt pavements where the automobile would run without a sound, and turn almost as easily as if it were walking on air. And, by the way, we are already, at least to some extent, ignoring not only mud roads, but roads of every kind, and climbing *through the air*, and I do not mean by means of the gas-balloon either. But I am not at liberty just now to tell all I know in regard to this matter.

Marysville, O., I found so torn up with their preparation for nice pavements that one could hardly get to a hotel, store, or restaurant without going on foot; and sometimes it was difficult to get there at all. There seems to be a general forward movement, and perhaps a little good-natured rivalry, in fixing up the towns and cities of Ohio, and in my opinion there is great need of it. The roads, in many cities, even on the principal streets, are full of mud-holes or round cobblestones, and I presume these things have been tolerated simply because the towns had planned to do a good job when they got at it, and they did not want to waste money on temporary improvements meanwhile. Our town of Medina is just now in that fix. The street most used has been in a horrible condition for a year or two; but

as I write the surveyors are at work, great ditches are being dug across it to convey the city water, and to look after proper sewage, before laying the vitrified bricks that are being piled up in great heaps on each side of the roadway. God is already blessing our people in their efforts not only to fix up each individual home, but to take care of the streets and highways that are to be used by each and all. May he grant this work may be done in peace and harmony all over our land; and at the same time may he give us men of nerve and courage to rebuke and punish the "grafters" who would rob the people of the public funds.

The Philadelphia *Farm Journal* has gone further than any other agricultural paper in declaring that automobiles should be barred from the public roads. If I am making a mistake in this I shall be glad to be corrected; but in several recent issues they have at least intimated that the farmers who built the good roads are being driven off and being obliged to take byways on account of the autos that are, as a matter of course, selecting the best and most direct highways. In fact, there has been more or less of a disposition to quarrel over the right of way ever since automobiles have become so prominent. The *Farm Journal* thinks that what the owners of autos have done in the way of paying for our good roads is only a drop in the bucket. Now, this may have been true in the past, but it is not going to be so in the future. As a rule, the owners of autos have means, and the greater part of them certainly are not only able but willing to pay, and pay liberally, for whatever they want. Men of wealth are going to furnish the money for beautiful roadways in a way they have never done before; and the question as to whom the roads belong to, and who shall use them, is going to be settled in the line of our text: "And the meek shall inherit the earth, and shall delight themselves," not only in peace, but in the "abundance of peace." Very likely some of you will suggest that the men who run the autos are *not* exactly the personification of meekness; and I shall have to admit that some of them are not. There are others, however, who are coming rapidly to the front who not only practice but exhort meekness. There is a great organization, the American Motor League, that not only makes its business to see that our people have fair play, but also declares most vehemently that every man who owns an auto shall respect the law. Let me give an illustration:

In running our bicycles a year or two ago we were greatly annoyed by chickens and other poultry belonging to the farm homes. They had been educated, it seems, to calculate safely on their ability to get out of the way of a horse and buggy; but the wheel was so much swifter, and came on to them so silently, they got "rattled," and, instead of getting out of the way, or staying out of the way, some evil genius seemed to possess them to run right under the machine. Well, now, this is very much worse with autos.

A hen with a dozen chickens will be looking after the welfare of her flock by the roadside. When the auto comes on her unexpectedly, she (and the chickens) at the last moment seem to think that the other side of the road will be much the safer, and so they run right into danger; and unless the driver slows up and turns his machine so as to avoid them he will be pretty sure to kill chickens more or less. Now, even as good a boy as Huber suggested that a chicken, especially a small one, is not worth slowing up for, especially if you are in a hurry. I reproved him, and I wish here to reprove every user of the highway who takes that ground. Some of the auto magazines have suggested that poultry is out of place on the highway. Even if this should be declared so by law, I would not consider for a moment asking the farmer to shut up his chickens or to keep them off from the roadway. You see, friends, it hits the same question as to whether bees have the right of way to go where they choose. A small chicken may represent only a nickel in value; and even if the driver would willingly hand over the nickel rather than stop, this does not help the matter. Paul says, "If meat maketh my brother to offend, I will eat no meat while the world standeth;" and killing chickens, and leaving them lie scattered along the highway, certainly does make, just now, a farmer "brother to offend."* I am sorry to hear that, on the road that was chosen for automobiles to run from New York to St. Louis, not only dead chickens but geese, turkeys, and guinea fowls were mangled and scattered along the way. I have never yet killed a chicken, although Huber killed one or two when I was sitting by his side. That was when we first started out, more than a year ago. I have always slowed up rather than endanger the life of a chicken, out of respect to my farmer friends; and if I should be so unlucky as to kill one I will certainly stop my machine and pay for the fowl. We are told that, on that ride to St. Louis, an irate farmer drew a gun and threatened the life of one of the auto drivers unless the man stopped and paid him a dollar for a chicken. He said, "Of course, *you* did not kill my chicken; but one

of your crowd did, and you can get your money back from the crowd." He got his dollar, and the crowd did make good the man who handed it over to avoid being shot. But in this case the farmer was the one who was breaking the laws; and I think that, in order to avoid establishing a bad precedent, this farmer should have been arrested and punished. Getting your rights by using a shot-gun illegally is not according to the spirit of our text.

I have already discussed about teams. We have good laws in regard to this matter, and horses are fast becoming educated as well as the chickens. We have good laws regulating the matter; and almost everybody understands now that an auto driver is legally obliged to slow up or stop whenever any person who is driving a horse gives him a wave of the hand. It may be annoying to be obliged to slow up and stop the engine when the horse pays no attention whatever to the machine; but it is the law, and we must obey it.

I wish I had space to tell you of the pleasant words and smiles I received during that long trip in arranging this matter of frightening horses. I made it a point to say, when I hindered anybody because his horse acted badly, "I am very sorry to have annoyed or hindered you. I try to avoid making anybody trouble." In reply to such words, over and over again bright intelligent men and women have said to me, "I am exceedingly obliged to you, sir, and I fear I have hindered *you* needlessly. My horse has acted badly on previous occasions, but you have a fashion of going much slower than such vehicles usually do, and your machine doesn't seem to make nearly as much noise as the greater part of them." Of course, the replies are not always in the above language, but something like it. Again and again people would say, when I began to slow up, "Go right along, stranger; I can handle my horse, I am sure, and I want him to get accustomed to these things."

Unfortunately I came into the town of Xenia just as long strings of vehicles were returning with their occupants from the biggest day of the county fair. It was no use for me to take another road leading into town, for they were all in the same fix. I did think of stopping by the wayside; but that would have kept me till after dark, which would have made matters still worse; so I passed vehicle after vehicle. Let me remark here that there seem to be special towns where the horses act very much worse than in others. Where there are a dozen autos in the town, the horses have mostly become accustomed to them, and there is little or no trouble. Xenia and one other town are the worst I have seen; but in both places the people who drive the horses were more at fault than the horses themselves. They frightened their horses by making them think they were going to be killed sure. On one occasion I saw some women away off on top of a hill, piling out of the buggy in frantic haste. They were so frightened, and were

* Farmers, or perhaps I should say farmers' wives, work hard to rear their chickens, and it is no small loss if they be run over, especially if they are run over with indifference, as if they did not amount to much anyhow. I stopped one night at a country home. The father and mother, with three or four children, had been for thirty years on a rented farm. Various mishaps had prevented them from purchasing the property outright. Just a few days before my arrival, the good wife said to the husband in the morning, "Why, husband, you let the chickens out this morning, didn't you?"

"No, I have not touched the chicken-coop at all."

"Why, dear me! I fear somebody must have stolen them."

An examination showed that 73 chickens, worth 50 cents apiece for broilers, had been stolen during the night. These chickens were the result of days and weeks of hard work. The coop was securely fastened every night and opened every morning; and yet there are wretches in human form who would thus rob a poor farmer's wife on rented land of her hard earnings. Only about a year ago their best horse was stolen out of the lot in like manner. Think of this when you feel like calling it a "small thing" because a chicken or two may be killed by an automobile.

trembling so, they could hardly stand on their feet. As soon as I was near enough I stopped my machine, and not only soothed the women but I would have soothed the horse also were it not that he did not see any thing to make a fuss about. The grandmother, who held the baby, said, "But you see, stranger, we have a *baby* here, and we can not take any chances on babies." I told her she was exactly right, and I soon made friends with the baby and the baby's mother. I tried to have them get back into their buggy, but they said their horse was just frantic at the sight of an auto, and they insisted on walking in the dust clear up to my machine and past it. The horse paid scarcely any attention to it whatever, although I led him right up to it. Now, these people were profuse in their expressions of gratitude. The grandmother said something like this: "If all men were as kind and careful as *you* have been, stranger, what a different world this would be!"

Of course, it took some time to get by all of these vehicles in this way; but it gave me a rare opportunity of showing forth the spirit of Christ Jesus. And when we come right down to it, what is the most important business we have in life? Why did the dear Savior give me a human life to live? and, finally, for what reason did he send me out on this trip, unless it was to show forth his spirit wherever I go and to all I may meet? Permit me to say right here I do not know that I ever thanked God for his mercies, and for giving me this life to live, any more than I did during that outing of two weeks; and I think my happiness was due to the pains I took to make friends, not only with men, women, and children, but with the horses, geese, and chickens. Whenever I stopped to oil the machine, make adjustments, or get gasoline, a crowd soon gathered. I was sometimes tempted to be vexed with the inquiring curiosity of small boys. There are always some in the crowd that look the machine all over intently, but never touch any thing; but there are others whose itching fingers can hardly be kept off the rubber tires, cranks, valves, etc. In vain I told them they must not touch a thing about the machine or they would make mischief; but when I was watching the oiling, something would be handled. What makes the difference in children? Why, my dear father and mother, it is the *home bringing-up*. If your child has not already been taught to avoid meddling with things when he goes around machinery belonging to somebody else, go right at it this minute. It will not only enhance his money value anywhere in the world, but it may save his life. In one town there was a boy who was so bent on getting hold of every thing it was next to impossible to stop him. I cautioned him repeatedly; but when my head was down under the machine I heard a sharp click, then an explosion in the cylinder, and a rap as if you had struck a boy with a ruler. I asked the boy what happened, and he whimpered out, "Why, that crank all at once flew around

and struck me on the head." He said he did not touch any thing; but the other boys said he turned the electric switch. The engine had been stopped with the compression on; and it happened that, when he moved the switch, it ignited the charge. I hope his punishment will cure him, at least to some extent, of his peculiar propensity.

I usually made friends with the boys and girls while on my trip, telling them I would give them a ride as far as they chose to go, providing they were willing to walk back; and the memory of their childish thanks is still fresh in my mind.

As it is now vacation time, I did not wonder there were large numbers of boys scattered through the Ohio towns, with nothing particular to do. But it did give me pain to see able men, and especially young men, loafing and smoking in front of the country stores. Not only were they smoking cigars and pipes, but in almost every town, if I made any sort of stop, somebody would roll up a cigarette and light it, and almost make me sick with its fumes, even when we were in the open air. I wonder if the use of tobacco promotes loafing. My trip was made during harvest time, and through a part of Ohio where there are great factories employing thousands of men; and yet able-bodied men were loafing, and seemed to be trying to kill time at the country stores all through Ohio. The rural free delivery of the mail cuts off the excuse to go to the postoffice, and ought to discourage loafing. Some of the smokers of cigarettes were well dressed — apparently the sons of well-to-do parents; and with the cigarettes were almost always oaths.

During warm days I found that it was necessary to give our engine fresh water about once in ten or fifteen miles. I knew our water-pump was badly worn. While at Xenia the pump failed entirely; but I was fortunate in finding a factory where they were building automobiles. The proprietor said he was familiar with the Olds machine, so we proceeded to pull it to pieces, and then found a part of the pump had literally worn out. A new piece had to be made. Now, I am a little nervous about setting strange men at work on my machine. I was afraid, in taking it all to pieces, they might do harm as well as good. I was agreeably surprised, however, to find them really bright and capable mechanics. The young man who was set at work to make the new part of the pump especially impressed me. He was exceedingly careful to have every thing exactly right. When mechanics attempt to rush work of this kind, and quarrel with their tools and machines, it always tries my patience. But this man was a model workman in his line of business. The proprietor, however, although equally skillful, was inclined to be impatient. After we had been at work an hour or two he began to swear. Said I, "My friend, may I ask your name again?"

He replied, "My name is Baldner."

"Well, Mr. Baldner, if you will excuse

the liberty I take, I am sorry to find you are a swearing man. Don't you believe you could get along just as well, and may be better, if you kept back those bad words?"

"Well, now, what is *your* name?"

"I am A. I. Root, of Medina, Ohio. I profess to be a follower of the Lord Jesus Christ, and it always pains me to hear such words as you have just been using."

He made some reply with a remark rather defending himself, and was a little inclined to resent my rebuke, so I dropped the subject. After a while, when the difficulty with the machine was gotten over, and he was pleasant and good-natured, I tackled him again.

"Friend Baldner, if you were hiring a new man, wouldn't you give more for one who is patient with his work, and never swears? Suppose the skill of two men to be exactly equal, wouldn't the man be worth more money, in your opinion, who, no matter how much he is vexed and tried, keeps a cool head and holds his temper without ever uttering a bad word?"

He looked at me a minute and then began to laugh.

"Why, Mr. Root, the man who never swears and never becomes impatient—that is, who never lets it come out—is worth the most money, of course. There is no question about it. But if you have worked much with automobiles, you know how things sometimes act, especially when you are in a hurry, as I am now."

"What does your wife think about it? I believe you are a married man."

"Oh! she is with *you*, and you are *both* right."

When the work was completed I could not only go 25 miles without filling the water-tank, but even 30 or more. The auto instruction-book says, "Give water about every 25 miles." Then I went on my way rejoicing. But on my way home the machine began to miss explosions. I went over all the connections, cleaned the carburetter, and did everything I could think of. Sometimes my efforts resulted in bettering the matter for a time; but it kept gradually getting worse until I spent a good deal of time under shady trees along the way for almost two days, trying to find the defect. I had prided myself on being able to hunt up the cause of any failure in a very little while. I had had no trouble I could not locate very soon, for almost a year past. The machine would make four or five explosions all right, and then it would miss almost as many. Sometimes it would run up a hill almost without a miss; then it would miss three or four; and just about as it was ready to stop and go backward it would commence again. It was pretty hard on the engine to endure those shocks; but as I did not succeed in finding the trouble I thought I could get home, even if the auto was crippled some. Finally one afternoon about three o'clock, when I was just on the edge of a little town called Raymond, Union Co., my auto all at once stopped going forward, al-

though the engine kept right on. It would not move ahead with either high or low speed. I found out, however, it would go backward all right, so I created no little merriment among the villagers by going into their town backward. As I had not learned to steer in that way, my course was rather crooked. I ran up to a blacksmith shop and inquired if there was an automobile owned in that vicinity. No such thing was within miles.

"Does anybody know of a mechanic who would be likely to be capable of pulling my machine to pieces?"

Of course, I could pull it to pieces myself; but to take the engine apart would be rather heavy work, and it would be a pretty hard task on the nerves of an old man like myself. I wanted a bright young man for a helper. I meditated sending for Huber, but he was about a hundred miles away. Unconsciously my little prayer welled up in my heart, "Lord, help! Give me wisdom and understanding to decide what is best to do under the circumstances." I am glad that I added, "Not only what is best for me to do, but what will be best for these my friends and neighbors who are all about me. Help me to be ready to carry any message that I can carry to these people who are all strangers."

Of course, the above was a mental prayer.

Almost as soon as it was finished, a one-armed man of the group who had gathered around the machine suggested, "Why could not Ed Lowe help him out?"

And then a small boy piped in, "Why, yes; Ed Lowe has built two or three automobiles already. He will be all right."

In a few minutes the one-armed man volunteered to pilot me to Mr. Lowe. He owned a shop for making gas-engines, in Columbus, O., but had just finished his job on the gas-engine at the grist-mill, and was ready to take the next train. When I told him of my predicament he said he thought he could help me out, as he had overhauled several of the Olds machines. We both got on our overalls, and began pulling the machine to pieces. I happened to remark to him that I would have undertaken the job alone, but I feared I should be considerably worried. Then he surprised me by something like the following:

"Mr. Root, if you will take all your cares and burdens to the Lord Jesus Christ you need not be burdened or worried by *any* thing."

This surprised me, because it is very unusual for me to find a man who *anticipates* me in recommending the gospel of Jesus Christ.

Let us now consider for a moment the many things included in that little prayer of mine for help—the many reasons I had for *thanking* God instead of feeling cross because of my breakdown. I found a man who was, by chance, right in the town where I stopped. He was not only an expert mechanic, but a professing Christian. But this is not all. Before we got the machine

apart, a big thunder-storm came up and we had to hustle to get into the shop near by. Had the accident occurred when I was in the country, far from any town, just before the approach of the storm, I might have been in a very bad predicament. As it was, we made the repairs while I was waiting for the storm to pass by.

A gentleman at the hotel gave me a little sketch of my new-found friend. He was brought up on a farm close by the little village of Raymond. He always showed such a love for machinery that, as soon as he was old enough, he made machinery his business. He and his brothers first built two or three automobiles, but finally settled down on the building of gasoline-engines—the business they now follow in Columbus. He informed me that at the present time he is called for all over the country to do adjusting and putting in order gas-engines. If I am correctly informed, the trouble with the one he had just visited was about like this:

It runs a gristmill, and had been giving great satisfaction for nearly three years, when it suddenly refused to go. Mr. Lowe looked it over, and found every thing in proper order. Then he began tracing up the source of gasoline, and this is what he found: A few weeks ago the iron pipe that carries the gasoline to the engine rusted through or broke off, or something of that sort. The owner mended the break with a piece of rubber tubing; and as that seemed to answer every purpose he rather forgot about it, and let it remain. When Mr. Lowe saw the rubber tubing he took it out and made a connection with an ordinary iron pipe, throwing away the gasoline in the engine, or straining it. As gasoline dissolves rubber it had, after a time, rendered the gasoline unfit. Lots of expensive breakdowns are the result of some such carelessness as that. Perhaps I might mention that gasoline-engines are rapidly taking the place of steam power, because it may almost be said they require no engineer. Mr. Baldner, of Xenia, before mentioned, told me their gasoline-engine had run their own machine-shop for a year and eleven months with an outlay for repairs of only 25 cents. His explanation of this was, "Mr. Root, nobody ever touches that engine but me." Well, Mr. Baldner does not touch it very much, for he worked on my auto from morning till noon without ever taking a look at the engine; or if he did I did not see him do it.

The trouble with my machine at Raymond was that five steel pins in the transmission gear had been sheared off, or broken by the hard knocks I had given it. I thought we could get some steel for pins or rivets at the hardware stores that would answer; but Mr. Lowe declared that nothing was safe for such a critical place but the very best Stubbs steel rod; so he telephoned for it at their shop in Columbus. After the rod came we found it was a trifle too large, and we proceeded to grind it down on an emery wheel. I turned the crank while he did the grinding; but when my wind gave out, I looked about

for some of the boys or loafers who had been hanging around; but, for a wonder, when I wanted them they were all missing. At this juncture a ruddy-faced red-headed farmer boy came into the shop perspiring freely. He wore on his head a broad-brimmed straw hat with many a rent. He happened to overhear my inquiry for some cheap hand. Finally he came up with a good-natured smile on his boyish face and said, "Brother, I will turn that crank for you. I think perhaps *my* wind will hold out."

I thought by his manner he had come in on an errand, and would have to get away again soon. But pretty soon Mr. Lowe explained that that red-headed youth was his brother, and suggested that they could get me on the road quicker if this younger brother turned in and helped. Then I found out he was one of the firm of Lowe Brothers, and that his name was Charley. I suggested to the boys that, after they got the pins put in and the machine set up, I was going to have some fun in seeing them cure the gas-engine of missing explosions. Charley is a little more talkative than his brother. He sailed his old straw hat away over in the corner, and went to work with a vim that was refreshing. I did not have any anxiety in regard to those two boys, the way they went to work on that machine. When I suggested they might fail as I had, Charley replied, "Oh! no, Mr. Root. If we fail it will be the first time in our lives. We will 'run down' the mischief and mend up the defect in a very short time."

Now, I want to stop right here and call your attention to the contrast between these two young farmer lads working on that hot day until the sweat fairly dropped from their ruddy faces, and the idlers that stood by. While thus at work a crowd of town fellows stood around doing nothing. Some of them were complaining, perhaps, that they had not a job; and I am not sure that anybody would have given them ten cents an hour; but the Lowe Brothers had all they could do at *fifty cents* an hour. They were called for by telephone before they finished my machine. I think their regular price is fifty cents an hour and traveling expenses, and they are full of business at that. If these friends of mine in Raymond should see this I hope they will excuse me for speaking plainly; for plain talk is the only thing that will do them good. These men not only had nothing to do, even though the storm had cleared away, and it was a most beautiful morning to do work of any kind, but they were almost to a man smoking pipes, cigars, or cigarettes, and each cigar seemed to have a different flavor. I felt so vexed by the nauseating smoke that I was tempted to use the term "villainous" flavor. Each one of the crowd who used tobacco did not mind it; but I felt pretty sure that the elder Lowe, at least, was annoyed by the nauseating fumes. He pulled his head out of the machine, and said:

"Jim, won't you be so kind as to bring us a jug of water?"

Jim looked a little astonished, especially when the owner of the establishment replied, "Why, I just brought a jugful;" then friend Lowe looked at me in a kind of comical way and said, "Well, Jim, I don't care very much whether you get the water or do something else, only so you get away off a little while." At this I suggested our two friends would get at the ignition troubles with much more comfort if all those who were smoking would go for water or *something else*. By the way, boys, did you ever think that the one who is carrying his burdens to the Lord Jesus Christ not only never swears, but, as a rule, he never uses tobacco in any form?

Now for the trouble that puzzled me for a good part of two days. One of the boys started the engine, and the other, the younger one, began listening so intently to every portion of it that I really thought his red hair would become tangled up in the machinery. At first they thought the trouble was with the induction-coil. I told them I examined that very thoroughly, and I did not think it possible. Then they tried other places. I confess I could not help being a little pleased to think *they* too were bothered for at least a little while. Finally the older one pushed a long screwdriver down into the center of the machine, and, presto! all at once the explosions commenced, sharp, clear, and perfect—no misses; it was just the regular pop, pop, pop.* I wish I could show the grimace on Charley's face as he raised his hand and looked at me with a serio-comic air. Some people pay out their dollars to go to the theater and see the prima donnas pose while the audience cheers and encores. Now, that is well enough, perhaps, if you choose; but give me the boy mechanic who has solved a problem, especially one in the line of electrical and chemical engineering, and you can have all the rest. Our text tells us the meek shall inherit the earth; and this nation of ours shall be saved and handed down to posterity by just such men as those two boys are going to make—the boys who were reared on the farm, and take to mechanical engineering because they *love* machinery—the boys who have the grit to study out and conquer this world's problems—the boys who were saved from tobacco, profanity, gambling, and all these other things by *their trust in the Lord Jesus Christ*. I am sorry it is

my duty, to be absolutely truthful, to add that Charley, the younger son, is not yet a follower of the Lamb of God that taketh away the sin of the world. He commenced once to swear just a little when something went wrong; but when I expressed astonishment and pain, he promised not to do so any more. The machine was all ready to run. It was pushed out of the door, and I told the older one to run it around town so as be sure the adjustments were all right. He called Charley to bring him his hat, and then Charley clapped his own old straw hat on his brother's head just as the latter was pulling the starting-lever. This was done in boyish playfulness, for it would be quite a joke to see his brother sailing round town with all the inhabitants watching, for the machine was a new thing in that little town. At first the elder brother hardly noticed the hat; but when he did he stopped the machine abruptly and bade Charley bring him his own hat. And, by the way, the hands of both boys were too much covered with black grease to permit of touching a decent hat or any sort of clothing. Charley, with comic grace, took his brother's good hat between his two wrists, so as not to touch it with his fingers, and gently placed it on his head.

I paid each of the two boys fifty cents an hour for the time they spent in putting my machine in order; but I rejoiced at the *privilege* of doing it. It is right and proper to enjoy acknowledging the worth of those who have raised themselves up by their own industry and hard work to the level of skilled artisans or experts—experts who are wanted everywhere in this age of machinery.

Before closing I wish to mention how keenly I enjoyed my ride through the corn region of Southwestern Ohio. The roads were so fine I often ran well into the night; and as the auto reeled off mile after mile, with the cornfields on either side, lighted only by my lamps, so near the track, and with stalks so tall they almost seemed to meet overhead, it made me think of the Arabian Nights enchantments. In riding after dark, even on level ground, I can hardly resist the feeling we are going down hill; for *how else* could this new creation plunge ahead so unceasingly, without a horse to pull it?

Temperance.

OHIO CITIES OF 10,000 PEOPLE, AND NOT AN OPEN SALOON.

I have elsewhere mentioned Xenia, Ohio, a town of about 10,000 inhabitants, that voted dry over two years ago. The wets, however, have been boasting that the damage to business was so great, etc., that Xenia would go wet the next chance, which occurred only a few weeks ago. Their great argument was, the "speakeasies" did just about as much business, while the city got no "revenue," etc., and many business men were humbugged by such arguments—loss of revenue. Just before election, however,

*The whole trouble was because the steel spring on the commutator, sometimes called the "brush," had become too weak, or perhaps worn, so it did not press with sufficient force on the cam as it comes around at every revolution of the shaft. This steel spring was easily removed with a screwdriver, then friend Lowe took my light hammer and gave the spring just one tap, screwed it back in its place, and the trouble that had puzzled me so many hours was over. I felt vexed at myself to think that, in all my researches, I had never thought of this spring. In fact, I remembered that Ernest had had one just such trouble before. Here is a great lesson for us. A single tap with a very small hammer, when rightly directed, gave the machine, life and abundance of power; but it wanted brains to "run down" the mischief, as Charley expressed it, and see just *where* this tap of the hammer was needed. And this whole world is constantly wanting brains and intellect to direct not only the *muscles* of human beings, but the thousands of horse power that our engines and power-houses are furnishing.

that grand temperance woman, Mrs. Lenora Lake, the one who has done such mighty work among her own people, the Roman Catholics, came to the city, and not only carried her own people but almost the whole town. A relative of mine told me the city would have gone wet without question had it not been for the vigorous efforts of this one temperance woman. He said he did not believe there was a temperance speaker in our land, among the men-folks, who could have carried the town as she did. The town went dry with a very fair majority.

There is another fallacy which the recent temperance crusade in Xenia has refuted. Many business men are afraid to take an active and prominent part in getting the saloons out because the wets would not patronize them. Now, the firm of Hutchinson & Gibney, dealers in drygoods, etc., have from first to last taken a very prominent part in ousting the saloons. They have just sent to the *American Issue* the following letter:

Mr. P. A. Baker:—We are obliged to you for your wor-

thy labors on the wet and dry question. Our success will help others. We are known as a temperance house, or "dry," and our sales last year were \$10,000 more than any of the previous years of our history.

Xenia, O., Aug. 2, 1904. HUTCHINSON & GIBNEY.

Now just one *other* item. I told you I came into the town during fair time. The day after the fair, one of the Xenia papers stated in an editorial that, for the first time in years, there had not been a single arrest made on the fairground for drunkenness, pocket-picking, nor any disorderly conduct; and yet the attendance at the recent fair was one of the largest on record. Cambridge, Ohio, with a population just about equal to that of Xenia, has also gone dry for the second time. A prominent man among the wets remarked recently, with a discouraged air, that if "things" kept on at the present rate there would not be a saloon left in Ohio at the end of twenty years. I feel like thanking him for his encouraging words—especially as they come from "across the line." But, dear Christian workers, can't we cut the time down to a half or a quarter of the twenty, God helping us?



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